

**NEW UTILITY PATENT APPLICATION TRANSMITTAL***(Only for new nonprovisional applications under 37 C.F.R. 1.53(b))*

Docket No.

19529-038

Total pages in this  
submission**TO THE ASSISTANT COMMISSIONER FOR PATENTS****Box Patent Application  
Washington, D.C. 20231**

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

**PAGING TRANSCEIVERS AND METHODS FOR SELECTIVELY RETRIEVING MESSAGES**

And invented by:

**RICHARD J. HELFERICH****IF A CONTINUATION APPLICATION**, check appropriate box and supply requisite information:☐

Continuation

☒

Divisional

☐Continuation-in-part (CIP) of prior application No.: 08/934,143

Enclosed are:

**Application Elements**

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 53 pages(s) and including the following:
  - a. ☒ Descriptive title of the invention
  - b. ☒ Cross references to related applications (*if applicable*)
  - c. ☐ Statement regarding Federally-sponsored research/development (*if applicable*)
  - d. ☐ Reference to microfiche appendix (*if applicable*)
  - e. ☒ Background of the invention
  - f. ☒ Brief summary of the invention
  - g. ☒ Brief description of the drawings (*if drawings filed*)
  - h. ☒ Detailed description
  - i. ☒ Claims as classified below
  - j. ☒ Abstract of the disclosure

JC927 U.S. PTO  
09/688321

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JC872 U.S. PTO

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**Application Elements (continued)**

3. ☒ Drawing(s) (when necessary as prescribed by 35 U.S.C. 113)  
☒ Formal ☐ Informal Number of sheets: 12
4. ☒ Oath or Declaration  
 a. ☐ Newly executed (original or copy) ☐ Unexecuted  
 b. ☒ Copy from a prior application (37 C.F.R. 1.63(d) (for continuation/divisional applications only)  
 c. ☒ With Power of Attorney ☐ Without Power of Attorney
5. ☒ Incorporation by reference (usable if Box 4b is checked)  
 The entire disclosure of the prior application, from which a copy of the oath or declaration is Supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Computer program in microfiche
7. ☐ Genetic sequence submission (if applicable, all must be included)  
 a. ☐ Paper copy  
 b. ☐ Computer readable copy  
 c. ☐ Statement verifying identical paper and computer readable copies

**Accompanying Application**

8. ☐ Assignment papers (cover sheet & document(s))
9. ☐ 37 C.F.R. 3.73(b) statement (when there is an assignee)
10. ☐ English translation document (if applicable)
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS citations
12. ☒ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☐ Certified copy of priority document(s) (if foreign priority is claimed)
15. ☒ Certificate of Mailing  
☐ First Class ☒ Express Mail (Label No.: EL542221766US )
16. ☒ Small Entity statement(s) -- # submitted 1 (copy) (if Small Entity status claimed)

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**Accompanying Application (continued)**

- 17.
- ☒
- Additional enclosures (please identify below):

(1) Notification That the Power of Attorney and Correspondence Has Changed During the Prosecution of the Patent Application Under 37 C.F.R. 1.63(d)(4)

**Fee Calculation and Transmittal**

The filing fee for this utility patent application is calculated and transmitted as follows:

☐ Large Entity ☒ Small Entity

CLAIMS AS FILED					
For	# Filed	# Allowed	# Extra	Rate	Fee
Total Claims	84	- 20 =	64	x \$9.00	\$576.00
Independent Claims	29	- 3 =	26	x \$40.00	\$1040.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					
Other Fees (specify purpose):					
BASIC FEE					\$355.00
TOTAL FILING FEE					\$1,971.00

- ☒ A check in the amount of \$1,971.00 to cover the total filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge and Deposit Account No. 50-1553 as described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of \_\_\_\_\_ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.31(b).

*Martin M. Zoltick*

Dated: October 13, 2000

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Restondocs:12695.1(9SN01!.DOC)

JC927 U.S. PTO  
 09/68321

10/13/00

**Attorney Docket No. 19504-014**

**STATEMENT CLAIMING SMALL ENTITY STATUS  
UNDER 37 C.F.R. §1.9(f) and 1.27(b) - INDEPENDENT INVENTOR**

**Applicant:** Richard J. Helferich  
**Serial No.:** 08/934,143  
**Filed:** September 19, 1997  
**Title:** **PAGING TRANSCEIVERS AND METHODS FOR SELECTIVELY  
RETRIEVING MESSAGES**

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 C.F.R. §1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☐ the specification filed herewith with title as listed above.
- ☒ the application identified above.
- ☐ the parent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 C.F.R. §1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a nonprofit organization under 37 C.F.R. §1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below.

- ☒ No such person, concern, or organization exists.  
☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities (37 C.F.R. §1.27).

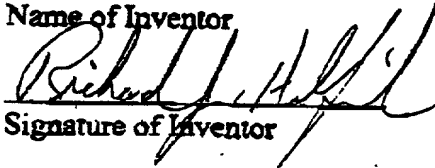
A. J. Docket No. 195, 014

Serial No.: 08/934,143

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in a loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 C.F.R. §1.28(b)).

Richard J. Helferich

Name of Inventor



Signature of Inventor

11-15-99

Date

RESTONDOCS 5396

Restondocs:6404.1(4XW011.DOC)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re the application of:

Docket No.: 19529-038

Richard J. Helferich

Serial No.: *To be assigned*

Examiner: *To be assigned*

Filing Date: *Herewith*

Group Art Unit: *To be assigned*

For: **Paging Transceivers and Methods For  
Selectively Retrieving Messages**

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The Assistant Commissioner for Patents  
Washington, D.C. 20231

**Preliminary Amendment**

Dear Sir:

Before examination of the above-referenced patent application, Applicant submits the following amendments.

**AMENDMENTS**

***In the Specification:***

Please amend the specification as follows:

Page 1, after the title and before "RELATED APPLICATIONS" insert -- This application is a divisional of U.S. Patent Application S.N. 08/934,143, filed September 19, 1997, the entire contents of which are incorporated herein by reference. --

Page 1, line 6, after the first occurrence of "Information," insert --application Serial No. 08/934,132;--

line 7, after "Times," insert --application Serial No. 08/934,337--;

line 7, change "Selectively" to --Selective--;

line 8, after "Paging," insert --application Serial No. 08/933,344--; and

line 15, change "paging receiving" to --paging receiver--.

Page 2, line 22, after "display" insert --and/or play--.

Page 4, line 21, change "transceivers" to --transceiver--.

Page 6, line 3, change "messages" to --message--; and

line 21, change "paging receivers" to --pager transceivers--.

Page 7, line 10, change "message" to --messages--.

Page 18, line 9, after "call" insert --signals--;

line 15, after "83" insert --if an acknowledgment signal was received,--;

line 17, change "82" to --83--; and

line 21, change "is" to --are--.

Page 21, line 16, change "The messages" to --One or more messages--;

line 18, after "addresses" insert --or recipients--;

line 23, delete "another";

line 23, after the first occurrence of "or" insert --a--; and

line 23, change the second occurrence of "or" to --of--.

Page 22, line 9, change "Fig. 7" to --Fig. 8--; and

line 16, delete the first occurrence of "135".

Page 24, line 3, change "each" to --the--.

Page 25, line 6, after "If" insert --at step 138--;

line 8, after "If" insert --at step 138 the user responds that--;

line 10, after "and" insert --a delay occurs at step 141 with delay circuit 28, as described above. After the delay, a call is established with system 30 at step 139 and flow continues as previously described.--;





Page 40, line 18, change “message” to --messages--.

***In the Claims:***

Please amend the claims as follows:

Please cancel claims 1-53.

Please add new claims 54-137.

--54. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal comprising a message identifier that identifies a message intended for the transmitting and receiving device, wherein the message is (a) stored in a system remote from the transmitting and receiving device, (b) not included in the selective call signal regardless of the size of the message, and (c) not stored in the transmitting and receiving device at the time the selective call signal is received;

a processor for generating a request signal indicating an action and indicating the message; and

a transmitter for transmitting to the system the request signal, whereupon receiving the signal, the system performs the action on the message.

55. The transmitting and receiving device of claim 54, wherein the indicated action is one of deleting the message from the system, forwarding the message to a specified recipient, saving the message, and replying to the message.

56. The transmitting and receiving device of claim 54, further comprising a user

interface for receiving from a user of the transmitting and receiving device an input specifying the action to be performed by the system.

57. The transmitting and receiving device of claim 54, wherein the action is to send the message to the transmitting and receiving device.

58. The transmitting and receiving device of claim 54, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

59. The transmitting and receiving device of claim 58, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

60. The transmitting and receiving device of claim 54, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

61. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver that receives a selective call signal comprising a message identifier identifying a message that is stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal;

means for retrieving from the system the message identified by the message identifier;

user interface means for receiving from a user of the transmitting and receiving device a command to perform an action on the message stored in the remote system;

means for generating a request signal in response to the user interface means receiving the command, the request signal comprising an action identifier corresponding to the action specified by the command; and

a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the action identified by the action identifier on the message stored therein.

62. The transmitting and receiving device of claim 61, wherein the action is to delete the message.

63. The transmitting and receiving device of claim 61, wherein the action is to save the message.

64. The transmitting and receiving device of claim 61, wherein the action is to send the message to the transmitting and receiving device.

65. The transmitting and receiving device of claim 61, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

66. A system, comprising:  
a storage and retrieval unit that stores a message intended for a transmitting and receiving device;  
means for transmitting to the transmitting and receiving device a signal comprising a message identifier that identifies the message;

means for receiving a retrieve message request signal transmitted from the transmitting and receiving device;

means for determining the priority of the message;

means for re-transmitting the signal comprising the message identifier to the transmitting and receiving device if the priority of the message is determined to be greater than or equal to a predetermined priority and the receiving means does not receive the retrieve message request signal within a predetermined amount of time from when the transmitting means first transmitted the signal.

67. The system of claim 66, further comprising means for transmitting the message to the transmitting and receiving device in response to the receiving means receiving the retrieve message request signal.

68. The system of claim 66, wherein the transmitting means transmits the signal to a base station, which then transmits the signal to the transmitting and receiving device.

69. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal;

a transmitter for transmitting signals to the system; and

means for a user of the transmitting and receiving device to enable and disable acknowledgment signals, wherein, if acknowledgment signals are enabled, the transmitter transmits an acknowledgment signal in response to the receiver receiving the selective call signal, and, if acknowledgment signals are disabled, the transmitter does not transmit acknowledgment signals.

70. The transmitting and receiving device of claim 69, wherein the selective call signal comprises a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

71. The transmitting and receiving device of claim 70, further comprising a user interface for receiving from a user of the transmitting and receiving device an input specifying an action to be performed by the system on the message stored in the system.

72. The transmitting and receiving device of claim 71, further comprising a processor for generating a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

73. The transmitting and receiving device of claim 69, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

74. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

- a receiver for receiving a selective call signal;
- a transmitter for transmitting signals to the system; and
- a user interface for querying a user of the transmitting and receiving device whether the receipt of the selective call signal should be acknowledged, wherein, if the user indicates that the receipt of the selective call signal should be acknowledged, the transmitter transmits an

acknowledgment signal to the system, and, if the user does not indicate that the receipt of the selective call signal should be acknowledged, the transmitter does not transmit an acknowledgment signal to the system.

75. The transmitting and receiving device of claim 74, wherein the selective call signal comprises a message identifier that identifies a message that is stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

76. The transmitting and receiving device of claim 75, wherein the user interface is further for receiving from the user an input specifying an action to be performed by the system on the message stored in the system.

77. The transmitting and receiving device of claim 76, further comprising a processor for generating a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

78. The transmitting and receiving device of claim 74, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

79. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal;

a user interface for providing a user with an acknowledgment option after the receiver receives the selective call signal;

a processor programmed to generate an acknowledgment signal in response to the user activating the acknowledgment option; and

a transmitter for transmitting the acknowledgment signal to the system.

80. The transmitting and receiving device of claim 79, wherein the selective call signal comprises a message identifier that identifies a message that is stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

81. The transmitting and receiving device of claim 80, wherein the user interface is further for receiving from the user an input specifying an action to be performed by the system on the message stored in the system.

82. The transmitting and receiving device of claim 81, wherein the processor is programmed to generate a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

83. The transmitting and receiving device of claim 79, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

84. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal;

a processor programmed to generate an acknowledgment signal in response to receiving the selective call signal only if the selective call signal further comprises an acknowledgment request; and

a transmitter for transmitting the acknowledgment signal to the system.

85. The transmitting and receiving device of claim 84, wherein the selective call signal comprises a message identifier that identifies a message that is stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

86. The transmitting and receiving device of claim 85, further comprising a user interface for receiving from a user of the transmitting and receiving device an input specifying an action to be performed by the system on the message stored in the system.

87. The transmitting and receiving device of claim 86, wherein the processor is programmed to generate a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

88. The transmitting and receiving device of claim 84, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.



89. A system, comprising:

a storage unit that stores a message intended for one or more transmitting and receiving devices;

means for transmitting to the one or more transmitting and receiving devices a selective call signal comprising a message identifier identifying the message and an acknowledgment request, wherein the message is not included in the selective call signal;

means for receiving a request signal transmitted from any one of the one or more transmitting and receiving devices, wherein the request signal identifies the message and an action to be performed on the message; and

means for performing the action.

90. The system of claim 89, wherein the action is to transmit the message to the transmitting and receiving device that transmitted the request signal.

91. The system of claim 89, wherein the action is to delete the message from the storage unit.

92. The system of claim 89, wherein the action is to forward the message to a recipient specified in the request signal.

93. The system of claim 89, wherein the action is to transmit a reply message to the originator of the message, the reply message being included in the request signal.

94. The system of claim 89, wherein the transmitting means transmits the selective call signal to a base station, which then transmits the signal to the one or more transmitting and receiving devices.

95. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal;

a user interface for receiving from a user of the transmitting and receiving device a command indicating that the message identifier should be sent to a specified recipient;

a processor for generating a request signal in response to the user interface means receiving the command, the request signal comprising a command identifier corresponding to the command; and

a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the command identified by the command identifier.

96. The transmitting and receiving device of claim 95, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

97. The transmitting and receiving device of claim 96, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

98. The transmitting and receiving device of claim 95, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the

transmitting and receiving device.

99. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver (a) for receiving a selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal, and (b) for receiving the message identified by the message identifier;

a user interface for receiving from a user of the transmitting and receiving device a command indicating that the user desires to forward the message to a recipient;

a transmitter for transmitting information to the system; and

a processor programmed (a) to generate a forward message request command in response to the user interface receiving the command and (b) to determine whether the message is currently stored in the system, wherein

the processor is further programmed to direct the transmitter to transmit the message and the forward message request command to the system if the processor determines that the message is not currently stored in the system, and

the processor is further programmed to direct the transmitter to transmit to the system (a) an identifier for locating the message stored in the system and (b) the forward message request command if the processor determines that the message is currently stored in the system.

100. The transmitting and receiving device of claim 99, wherein the processor determines whether the message is stored within the system by generating a message status request signal, directing the transmitter to transmit the message status request signal to the system, and receiving a message status signal transmitted from the system, wherein the message status signal indicates whether the message is stored within the system.

101. The transmitting and receiving device of claim 99, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

102. The transmitting and receiving device of claim 101, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

103. The transmitting and receiving device of claim 99, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

104. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal;

a user interface for receiving from a user of the transmitting and receiving device an input specifying two or more functions to be performed on the message stored in the system;

a processor for generating a request signal indicating the two or more functions to be performed; and

a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the two or more functions.

105. The transmitting and receiving device of claim 104, wherein one of the two or more functions is to send the message to the transmitting and receiving device and another of the two or more functions is to store the message within the system.

106. The transmitting and receiving device of claim 104, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

107. The transmitting and receiving device of claim 106, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

108. The transmitting and receiving device of claim 104, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

109. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

means for receiving a selective call signal from a system remote from the transmitting and receiving device, the selective call signal comprising a message identifier that identifies a message stored in the remote system;

means for receiving from a user of the transmitting and receiving device a first input specifying a first function to be performed on the message stored in the system, wherein the first function is to transmit the message from the system to the transmitting and receiving device;

means for generating a first request signal indicating the first function;

means for transmitting the first request signal to the system, whereby, upon receiving the first request signal, the system performs the first function;

means for receiving and storing the message transmitted from the system;

means for receiving from the user a second input specifying a second function to be performed on the message stored in the system, wherein the second function is to save the message in the system;

means for generating a second request signal indicating the second function; and

means for transmitting the second request signal to the system, whereby, upon receiving the second request signal, the system performs the second function.

110. The transmitting and receiving device of claim 109, wherein the processor delays the transmitter from sending the first request signal until a call is in progress.

111. The transmitting and receiving device of claim 110, wherein the processor initiates a call after the transmitting and receiving device receives from the user an input indicating that a call should be initiated.

112. The transmitting and receiving device of claim 109, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

113. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

means for receiving a first selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal; and

means for receiving a second selective call signal comprising at least part of the message identifier and comprising message status information indicating a status of the message stored in the system.

114. The transmitting and receiving device of claim 113, further comprising means for displaying to a user of the transmitting and receiving device the message status information.

115. The transmitting and receiving device of claim 113, further comprising:  
a user interface for receiving from a user of the transmitting and receiving device an input specifying a function to be performed on the message stored in the system;  
a processor for generating a request signal indicating the function to be performed; and  
a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the function.

116. The transmitting and receiving device of claim 113, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

117. The transmitting and receiving device of claim 116, wherein the processor initiates a call after the transmitting and receiving device receives from the user an input indicating that a call should be initiated.

118. The transmitting and receiving device of claim 113, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

119. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a user interface for providing a user of the transmitting and receiving device with the ability to disable acknowledgment of notification signals, wherein a notification signal is a signal notifying the user that information intended for the transmitting and receiving device is stored in a system and available to be retrieved from the system by the transmitting and receiving device;

a receiver for receiving from the system a notification signal having an information identifier that identifies information that is stored in the system;

a processor for generating an acknowledgment signal in response to the receiver receiving the notification signal if acknowledgment of notification signals has not been disabled; and

a transmitter for transmitting the acknowledgment signal to the system, wherein the receiver receives from the system the information identified by the information identifier, and

regardless of whether acknowledgment of notification signals is disabled, the transmitter transmits to the system an acknowledgment signal in response to the receiver successfully receiving the information.

120. The transmitting and receiving device of claim 119, wherein the receiver receives the notification signal from a paging network.

121. The transmitting and receiving device of claim 119, wherein the receiver receives the notification signal from a mobile radiotelephone network.

122. The transmitting and receiving device of claim 119, wherein the notification signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.



123. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal comprising a message identifier identifying a message that is stored in the remote system, wherein the message is not included in the selective call signal;

retrieving the message from the system;

receiving a command to perform an action on the message stored in the remote system from a user of the transmitting and receiving device after retrieving the message from the system;

generating a request signal in response to receiving the command, the request signal comprising an action identifier corresponding to the action specified by the command; and

transmitting the request signal to the system, whereupon receiving the request signal, the system performs the action identified by the action identifier on the message stored therein.

124. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the system, comprising the steps of:

storing a message intended for the transmitting and receiving device;

transmitting to the transmitting and receiving device a signal comprising a message identifier that identifies the message;

determining the priority of the message; and

re-transmitting the signal comprising the message identifier to the transmitting and receiving device if the priority of the message is determined to be greater than or equal to a predetermined priority and a retrieve message request signal from the transmitting and receiving

device has not been received within a predetermined amount of time from when the signal comprising a message identifier was first transmitted to the transmitting and receiving device.

125. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal comprising a message identifier that identifies a message that is stored in the system, wherein the message is not included in the selective call signal;

querying a user of the transmitting and receiving device whether the receipt of the selective call signal should be acknowledged; and

transmitting an acknowledgment signal to the system only if, in response to the query, the user indicates that the receipt of the message identifier should be acknowledged.

126. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal;

determining whether the selective call signal comprises an acknowledgment request;

generating an acknowledgment signal for acknowledging the receipt of the selective call signal only if the selective call signal comprises an acknowledgment request; and

transmitting the acknowledgment signal to the system if the acknowledgment signal is generated.

127. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the system, comprising the steps of:

storing a message intended for the transmitting and receiving device;  
transmitting to the transmitting and receiving device a selective call signal comprising an acknowledgment request and a message identifier identifying the message;  
receiving a request signal transmitted from the transmitting and receiving device, wherein the request signal identifies the message and an action to be performed on the message; and  
performing the action.

128. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal comprising a message identifier that identifies a message stored in the system, wherein the message is not included in the selective call signal;  
receiving from a user of the transmitting and receiving device a command indicating that the message identifier should be sent to a specified recipient;  
generating a request signal in response to receiving the command, the request signal comprising a command identifier corresponding to the command; and  
transmitting the request signal to the system, whereupon receiving the request signal, the system performs the command identified by the command identifier.

129. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal comprising a message identifier that identifies a message stored in the system, wherein the message is not included in the selective call signal;  
receiving from the system the message identified by the message identifier;

receiving from a user of the transmitting and receiving device a command indicating that the user desires to forward the message to a recipient;

generating a forward message request signal in response to the user interface receiving the command;

determining whether the message is stored in the system;

including the received message in the forward message request signal only if it is determined that the message is not stored in the system;

including an identifier for locating the message stored in the system in the forward message request signal if it is determined that the message is stored in the system; and

a transmitter for transmitting the forward message request signal to the system.

130. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal from the system, the selective call signal comprising a message identifier that identifies a message stored in the system;

receiving from a user of the transmitting and receiving device a first input specifying a first action to be performed by the system on the message stored in the system, wherein the first action is to transmit the message to the transmitting and receiving device;

generating a first request signal indicating the first action;

transmitting the first request signal to the system, whereby, upon receiving the first request signal, the system performs the first action;

receiving and storing the message transmitted from the system;

receiving from the user a second input specifying a second action to be performed by the system on the message stored in the system, wherein the second action is to save the message in the system;

generating a second request signal indicating the second action; and  
transmitting the second request signal to the system, whereby, upon receiving the second request signal, the system performs the second action.

131. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a first selective call signal comprising a message identifier that identifies a message stored in the system, wherein the message is not included in the selective call signal; and

receiving a second selective call signal comprising at least part of the message identifier and message status information indicating a status of the message stored in the system.

132. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

providing a user of the transmitting and receiving device with the ability to disable acknowledgment of notification signals, wherein a notification signal is a signal notifying the user that information intended for the transmitting and receiving device is stored in the system and available to be retrieved by the transmitting and receiving device;

receiving from the system a notification signal having an information identifier that identifies information that is stored in the system;

generating an acknowledgment signal in response to the receiver receiving the notification signal if acknowledgment of notification signals has not been disabled;

transmitting the acknowledgment signal to the system after it is generated;

receiving from the system the information identified by the information identifier; and

transmitting to the system an acknowledgment signal in response to the receiver successfully receiving the information from the system regardless of whether acknowledgment of notification signals is disabled.

133. In a communication system comprising a first system, a second system, a base station, and a transmitting and receiving device, a method performed by the first system, comprising the steps of:

receiving a data transmission from the second system, the data transmission including a system identifier that is associated with the second system and message information that identifies a message stored in the second system that is intended for a user of the transmitting and receiving device;

generating a page;

including the system identifier and the message information in the page; and

providing the page to the base station for transmission to the transmitting and receiving device.

134. In a communication system comprising a first system, a second system, a base station, and a transmitting and receiving device, a method performed by the second system, comprising the steps of:

receiving a message intended for a user of the transmitting and receiving device;

storing the message;

transmitting information regarding the message to the first system, the information including a system identifier that is associated with the second system and message information that identifies the message;

receiving a request signal from the user, the request signal comprising an action identifier identifying an action to be performed on the message; and

performing the action.

135. In a communication system comprising a plurality of systems, a base station, and a transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a page transmitted from the base station, the page comprising (a) a system identifier identifying a particular one of the plurality of systems and (b) message information identifying a message that is stored in said particular one of the plurality of systems and that is intended for a user of the transmitting and receiving device;

informing the user that the page has been received;

receiving input from the user specifying an action to be performed on the message; and

transmitting, to the system identified by the system identifier, an action identifier corresponding to the action specified by the user.

136. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver (a) for receiving a selective call signal having an information identifier signal identifying information stored in a system, the information not being included in the selective call signal, and (b) for receiving the identified information;

a processor for generating a first alert signal after the receiver receives the information identifier signal and for generating a second alert signal after the receiver receives the identified information; and

a user interface (a) for generating, in response to the processor generating the first alert signal, a first alert to inform a user of the transmitting and receiving device that the information identifier signal has been received, and (b) for generating, in response to the processor generating

the second alert signal, a second alert to inform the user that the information has been received, wherein the first alert is distinguishable from the second alert.

137. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a notification message from a first remote system, the notification message comprising a system identifier identifying a second remote system and an information identifier identifying information stored in the second remote system;

a user interface for receiving from a user of the transmitting and receiving device an input specifying an action to be performed on the information stored in the second remote system;

a processor for generating a request message indicating the action to be performed on the information and for addressing the request message to the second remote system; and

a transmitter for transmitting the request message to the second remote system.--

#### REMARKS

With the foregoing amendment, claims 54-137 are pending in the application, with claims 54, 61, 66, 69, 74, 79, 84, 89, 95, 99, 104, 109, 113, 119, and 123-137 being in independent form. Claims 1-53 have been canceled. New claims 54-137 are added. No new matter has been added to the application.



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Attorney Docket No. 19529-038

Prompt and favorable consideration of the present application is respectfully requested.

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Date: October 13, 2000

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Reference is made to co-pending patent applications filed on September 19, 1997, entitled "Paging Transceivers and Methods for Selectively Erasing Information," "Pager Transceivers and Methods for Performing Action on Information at Desired Times," and "Methods and Systems for Selectively Paging," each filed by Richard J. Helferich.

The present invention relates generally to paging transceivers and methods for selectively acting on messages and, more particularly, to paging transceivers and methods for selectively retrieving messages.

In general, a paging receiver can be classified into one of four categories: an alert or tone only paging receiver, a numeric paging receiving, an alphanumeric paging receiver, or a voice paging receiver. One common characteristic of all of these paging receivers is that they monitor the air waves and notify the user when their particular address has been detected. For the alert or tone only paging receiver, the paging receiver would generate a tone or beep when its address is detected. The other paging receivers, upon detecting their address, would

additionally store a message associated with the address signal and display or play it to the user. The message for a numeric paging receiver would be a set of numbers, typically the calling person's telephone number, and the message for an alphanumeric paging receiver would be a set of numbers and/or letters. The user of an alphanumeric paging receiver could therefore receive a message in the form of a telephone number with some descriptive text. For the voice paging receiver, the message that is stored is a voice message that the user can later play to hear the message.

A paging receiver is typically a rather small electronic device and, accordingly, has a limited amount of memory for storing messages that have been received from a base station in a paging system. Because of the relatively small size of the memory, the paging receiver can store only a limited number of messages. A user can delete messages from memory but will oftentimes desire to save a message, such as temporarily until the user makes a note of the message or until he or she is able to respond to the page. The messages that are saved in memory, however, reduce the space in memory that is available to receive new messages. This demand on space in memory is increasing as the size of the messages continue to grow and as users receive a greater number of messages. Although more memory can be added to accommodate more messages, the added cost and space needed for extra memory runs counter to the desires to keep the paging receiver small and inexpensive. A need therefore exists for a paging receiver which can display messages while efficiently using memory.

In addition to the demand on paging receiver memory, paging systems will



reach the base station. For example, when a paging transceiver is located in a basement of a building, in a subway, or in an airplane, the paging transceiver may be unable to issue a reply that can reach the base station. As a result, the base station may continue to transmit a page to a paging transceiver and the paging transceiver will continue to receive the message but the base station cannot detect the reply being issued by the paging transceiver. This unnecessary transmission of duplicate messages and the ineffectual reply signals transmitted by the paging transceivers consume valuable resources of the paging system and of the paging transceiver.

For safety reasons, a user may at times have to turn off his or her paging transceiver. For instance, when the user is on an airplane, the transmissions from the paging transceiver can interfere with the instrumentation or communication within the cockpit of the plane. The paging transceiver therefore should not be operating within the plane or around other electronic equipment that are sensitive to interference from the signals transmitted by the paging transceiver. As another example, if the user is in an environment that contains electronic detonators for explosive materials, the signals transmitted by the paging transceiver could possibly trigger an explosion. The user therefore must turn his or her paging transceiver off to ensure that it does not transmit any reply or acknowledgment signals in response to a received page. Although it may be dangerous for the paging transceivers to issue a reply signal in these situations, the signals transmitted by the base station may at times be safely received by the paging transceiver. Since the paging transceiver automatically issues a reply in response

[illegible]

## SUMMARY OF THE INVENTION

The system may transmit some identifying information about the page to the user without sending the entire message. For instance, the base station may



It is a further object of the present invention to provide pager transceivers and methods for paging that provide users with remote control over their messages.

It is yet another object of the present invention to provide pager transceivers and methods for paging that allow users to select when and how action should be taken on their messages.

It is yet a further object of the present invention to provide pager transceivers and methods for notifying users of received messages.

It is also an object of the present invention to provide pager transceivers and methods for providing control to users over message stored at remote locations.

It is still another object of the present invention to provide pager transceivers and methods that notify users of messages received from multiple sources.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

The accompanying drawings, which are incorporated in and form a part of the specification, illustrate preferred embodiments of the present invention and, together with the description, serve to explain the principles of the invention. In the drawings:.

Fig. 1 is a block diagram of a paging transceiver according to a preferred embodiment of the invention;

Fig. 2 is a more detailed block diagram of the transceiver in the paging



[illegible]



which preferably comprises a digital signal processor (DSP) 4. The memory 5 is connected to the DSP 4 and is for storing messages or other types of information. The memory 5 may comprise static RAM, Dynamic RAM, Flash RAM, or any type of memory suitable for storing messages and allowing the retrieval of the messages. The amount of the memory 5 is preferably at least 4 MB for voice or text applications, although it may consist of a greater or lesser amount depending upon the specific message type application.

The transceiver 2, as shown in more detail in Fig. 2, includes an antenna interface 20 connected to the antenna 1. The antenna interface 20 directs signals received from antenna 1 to a receiver section 21 of the paging transceiver 100 and directs signals transmitted from a transmit section 24 to the antenna 1. The antenna interface 20 is preferably a duplexer, however an antenna switch or other device may be utilized to provide signal isolation between the receiver and transmitter sections 21 and 24. Alternatively, if paging transceiver 100 includes two antennas 1 with one for transmitting signals and the other for receiving signals, the transceiver 2 would not require any type of antenna interface 20.

The receive section 21 includes a receiver 22 and a receiver frequency synthesizer 23. The receiver 22 is connected to the antenna 1 through antenna interface 20 and receives the signals directed to the paging transceiver 100. The receiver frequency synthesizer 23, based on an input from a processor 27, selects the frequency at which the receiver 22 receives signals. The received signals are passed from the receiver 22 to the processor 27.

The transmit section 24 includes a transmitter 25 for receiving signals from









the error or, as shown, the process may end at step 56. If no error was detected by the system 30 at step 51, a message, such as a voice message, is recorded and stored in the storage and retrieval unit 32 at step 52. At step 53, the system 30 determines whether a return receipt or a reply message is requested. If a return receipt or reply message is requested, the return address is entered by the caller or optionally issued by the system 30 and is stored by the system 30 in the storage and retrieval unit 32 at step 54. The system 30, for instance, may detect the address signal of the incoming call and, by default, store this number as the return address. After the return address is stored at step 54 or if a return address is not requested, the stored message is cross referenced to selective call data corresponding to the intended paging transceiver 100 at step 55. Also at step 55, a flag is set in a transmission stack file at the paging terminal controller 31 for subsequently transmitting selective call signals representative of the selective call data to the targeted paging transceiver 100. Housekeeping is performed by the system 30 and the call ends at step 56.

The base station 34, as shown in Fig. 3, comprises a switch 36, a transceiver antenna 37, and a transceiver base station 38. In response to a received message, the system 30 passes control information to switch 36 for setting up a page call. The switch 36, for instance, may be a mobile telephone switching office (MTSO) for interfacing to the transceiver base station 38. In the send page mode, selective call signals having an address associated with the paging transceiver 100 are transmitted. The address may be an address code for a paging transceiver, a mobile telephone number (MIN) for a mobile radiotelephone, or type of





shown. At step 61, the system 30 locates the current message flag from its transmission stack within paging terminal controller 31 and communicates with base station 34 for setting up a page call. The base station 34 transmits selective call signals and CI data to the targeted paging transceiver 100. At step 62, the system 30 determines whether an acknowledgment (Ack) was received from the paging transceiver 100 indicating that the page call was received. If an acknowledgment was not received, then at step 70 the system 30 determines whether an acknowledgment is a system 30 option. If an acknowledgment is required, then at step 71 the system 30 assigns the page call a priority in the transmission stack and eventually returns to step 61 for re-transmission. If the acknowledgment is received at step 62, the system 30 sets an acknowledgment flag (Ack flag) corresponding to the stored message.

If an acknowledgment is not a system requirement, as determined at step 70, or after posting the acknowledgment flag at step 63, the system 30 sets a timer at step 64 and waits a period of time before proceeding to step 65. At step 65, the paging terminal controller 31 determines if the stored message has been read. If the message has been read, then at step 66 the system 30 posts a read flag in the subscriber data base to indicate that the message was delivered and read and at step 67 the process ends.

If, at step 65, the message had not been read, then at step 68 the system 30 determines the priority of the message and proceeds to step 69. If the priority is high, as determined at step 69, then at step 61 the page call is returned to the transmission stack at the designated priority level for re-transmission. If, on the

other hand, the priority is not high as determined at step 69, then the message has a low priority and the process ends at step 67.

An alternate routine 80 for notifying a paging transceiver 100 that an unread message is waiting is shown in Fig. 6. At step 81, the paging terminal controller 31 sorts through subscriber listings which have a corresponding unread and unnotified message in the storage and retrieval unit 32 and sends a page request to base station 34. At step 82, the switch 36 checks a home location registry (HLR) to determine the registered location and status of the remote paging transceiver 100. A page call is processed by transmitting selective call from transceiver base station 37 at step 82. If a page acknowledgment is desired for verification that the paging transceiver 100 recipient received the selective call signals, an Ack signal is manually or automatically transmitted from the paging transceiver 100 to base station 34 for storage in the subscriber database of paging terminal controller 31 at step 82.

At step 83, a notified flag is set in the subscriber data base corresponding to the unread message stored in the storage and retrieval unit 32 and the paging process for the current unread message ends at step 84. If at step 82 an acknowledgment signal was not received, the message is assigned a new priority and the process is subsequently repeated. Optionally, a plurality of priorities may be assigned to acknowledged and not acknowledged unread messages so that the paging transceiver 100 is sent a number of calls until the message is read by the subscriber.

In the preferred embodiment, the base station 34 is part of a mobile



[illegible]

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2
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[illegible][illegible]









example, the user may select the functions of retrieving a message at step 114 and forwarding a message at step 112 and these functions may be performed in unison with each other or sequentially one after each other.

The paging transceiver 100 and system 30 may exchange status information during messaging calls initiated by the paging transceiver 100 or by selective call, such as page calls, initiated by the system 30. The status information may contain information corresponding to messages stored within the paging transceiver 100 or within the system 30. For example, if the system 30 erases a message that has resided in its memory for too long a period of time, such as an unsaved, read message, the system 30 may inform the paging transceiver 100 that the message no longer exists. If the message identifier stored in the paging transceiver 100 no longer corresponds to a message stored in the system 30 or in the paging transceiver 100, the CPU 27 removes the identifier for the no-longer existing message.

When the forward message function 112 is selected, flow proceeds to step 131 where the CPU 27 reads information pertaining to the message or plurality of messages selected by the user to be forwarded. The information may include a message identifier, location data, message length, message type, destination addresses, or other CI type data as previously described. At step 132, the CPU 27 determines whether the message cannot be forwarded without communicating with the system 30. At step 134, the CPU 27 determines if a call is in progress. If a call is in progress, CI data is exchanged at step 135 with the system 30 for forwarding messages. If the messages to be forwarded are located at the system 30, the



If yes, at step 133 the CPU 27 sets a save message flag in order to protect the message stored in message memory 5 from being over-written and the process ends at step 140.

If at step 132 the CPU 27 determines that the message is not stored at the paging transceiver 100, then at step 134 the CPU 27 determines whether a call is in progress. If a messaging call is in progress, CI data instructing the system 30 to save the message is sent. The system 30 flags the stored message and sends a message saved acknowledgment to the paging transceiver 100 at step 136. The CPU 27 converts the acknowledgment to status information and informs the user that the message is saved at the system 30 and the process ends at step 140. If at step 134, it is determined that the paging transceiver 100 is not currently in communication with the system 30, the CPU 27 flags the message identifier for saving and the user is asked if the call should be made now at step 137. If no, at step 138 the flag is kept for transmission to system 30 at a later time, such as during a selective call to the paging transceiver 100 or during a messaging call to system 30. If yes, then the CPU 27 sets up a call at step 139 for transmitting the save flag and CI data as previously described.

When the retrieve message function is selected at 114, then at step 131 the message identifiers corresponding to messages to be returned are read from the CPU 27 memory for retrieving the message. Additionally, the CPU 27 may read message location information, system ID information, address information, message length information, message type information as previously described. At step 132, the CPU 27 determines the location of the message and determines if



replying to messages as will be shown in more detail hereinafter.

With the send message function 115, in order to send a message, the message must first be stored at the paging transceiver 100 or at the system 30. The process of storing or recording messages is well know to those of ordinary skill in the art and accordingly will not be described in further detail. Examples of these devices are described in U.S. Patent No. 4,602,129 to Matthew, et al., titled "Electronic Audio Communications System With Versatile Message Delivery," and in U.S. Reissued Patent No. Re. 34,976 to Helferich et al, titled "Analog/Digital Voice Storage Cellular Telephone," both of which are incorporated herein by reference. The system 30 and paging transceiver 100 can record, store and retrieve a plurality of different types of messages as previously described depending on the application required.

If the send message function 115 is selected, the CPU 27 identifies the message to be sent and cross references it to the selected recipient address information. At step 132, the CPU 27 determines whether a call is required at step 132. The subsequent processing of sending a message should be apparent from the description above for forwarding a message and accordingly will not be duplicated in order to simplify description of the invention. The message to be sent may reside in the paging transceiver 100 or in the system 30. If the message resides in the system 30 and in the paging transceiver 100, the message in the system 30 corresponding to the CPU 27 message identifier will be sent in order to conserve air time. If the message does not reside in system 30, the message will be sent from the paging transceiver 100 to the system 30. If the message is to be sent from

the paging transceiver 100, the message may be a pre stored message or alternatively, the message may be transmitted to system 30 by paging transceiver 100 in real time during a call session between system 30 and paging transceiver 100.

If the erase message is selected at step 116, the erase message function allows a user to erase messages stored at the system 30 or at the paging transceiver 100 depending on the mode of operation. A message may be erased at a paging transceiver 100 without erasing the message identifier. If a message is erased at the paging transceiver 100 and the identifier still exists in message memory 5, the message can be retrieved from the system 30. In order to remove a message identifier at the paging transceiver 100, the message must be erased at the system 30. This feature causes the user to manage the messages at the platform, thereby conserving memory space at the storage unit 32. At step 131, the selected message to be erased is identified and the user is asked if the selected message in the paging transceiver is to be erased or if both copies of the message are to be erased. If the local message only is selected to be erased, the message identification information is kept and at step 133 the CPU 27 flags the message stored in memory 5 for erasure or overwriting. In other words, the message still exists but may be overwritten by another message when memory space is required and, until then, may be retrieved from message memory 5. If at step 132 a decision was made to erase both copies of the message, then at step 134 the CPU 27 determines if a call is in progress. If yes, at step 135 the CI data is exchanged instructing system 30 to erase the message. At step 131, the system 30 transmits an acknowledgment that













however, may include any number of systems 30 for storing messages with each system 30 storing information for a transceiver 100 being considered a content provider. For instance, as shown in Fig. 10, a messaging system 200 may comprise a plurality of systems 30 connected to the PSTN 35 with system 30A being associated with base station 34A and transceiver antenna 37A and system 30B being associated with base station 34B and transceiver antenna 37B. Although three systems 30 are shown, the system 200 may include any number of systems 30 and, although two base stations 34 are shown, each system 30 may be associated with a base station 34 and transceiver antenna 37 or only one of the systems 30 may be associated with a base station 34 and transceiver antenna 37. Furthermore, each system 30 need not include a paging terminal controller 31 or a storage unit 32. System 30C, for instance, may include a storage and retrieval unit 32 and input/output controller 33 but not a paging terminal controller 31 and may page the paging transceiver 100 through the paging terminal controller 31 in system 30A. Conversely, a system 30, such as system 30A, may include a paging terminal controller 31 and an input/output controller 33 but not a storage and retrieval unit 32. Further, the input/output controller 33 need not be a separate unit but may be incorporated into the paging terminal controller 31 if the system 30 does not include a storage and retrieval unit 32, or into the storage and retrieval unit 32, if the system 30 does not include a paging terminal controller 31. The systems 30 and base stations 34 may communicate with each other through the PSTN 201 or through links or lines other than or in addition to the PSTN 201, such as through an SS7 backbone of a wireless network or through the Internet.





additional or fewer fields than the example provided in Fig. 11.

The data transmission 201 also includes additional information that may be relayed and presented to the user. For instance, for many systems 30 that receive and store messages on behalf of the user, the additional descriptive information preferably comprises a return address for identifying the caller's telephone number to inform the user as to who left the message. For other systems 30 which may generate their own information, the additional information preferably describes the information available to the user. For instance, for a system 30 that allows users to sample songs, the additional information would indicate the title and the artist of the song and may also specify the cost to retrieve and play the song. Other uses of the additional information will be apparent to those skilled in the art.

The page sent to the paging transceiver 100 includes most, if not all, of the data transmission 201. The information transmitted to the paging transceiver 100, with reference to Fig. 7, may be inserted into a short message transmitted to the user at step 98. From the system ID information, the paging transceiver 100 can determine which system 30 it needs to respond to in order to act upon a message. For instance, system 30A may page the paging transceiver 100 and indicate that system 30B has a stored message. If the user selects the function of retrieve function, then the paging transceiver 100 can contact system 30B through base station 34B to retrieve the desired message. The paging transceiver 100 as discussed above may instead respond to base station 34A to retrieve the message and base station 34A would communicate with system 30B to retrieve or otherwise act upon the message.





The system 200 can present substantial cost savings to conventional paging systems. With a conventional paging system, the entire message is transmitted to the location of the paging transceiver 100. For instance, if the user's home base is in Chapel Hill, North Carolina, and the message originates in Chicago, Illinois, then the message is typically sent over the PSTN 35 to the home base. With nationwide paging, the user may have traveled to San Diego, California whereby the home base would then send the entire message from Chapel Hill to San Diego. With system 200, on the other hand, only the data transmission 201 is transmitted from Chicago to Chapel Hill and from Chapel Hill to San Diego. The actual message, in contrast, is sent directly from the storage facility in Chicago to San Diego, thereby reducing charges associated with the transfer between Chicago and Chapel Hill. Moreover, the data transmissions 201 between systems 30 may occur over the Internet. These transmissions, for instance, may be formatted according to the Voice Profile for Internet Mail (VPIM) and the addresses of the transceivers 100 may be determined from an open directory service, such as the Lightweight Directory Access Protocol (LDAP) or X.500.

The systems 30 and 200 allow a user to easily manage the multitude of message that are commonly received every day. Conventionally, a user would have to call in to the office voice mail to retrieve voice messages, call home to retrieve voice messages sent to the house, and connect with the computer network at the office to retrieve email messages. Although paging systems have been used to notify a user that a voice mail message or other message has been received, the user would still have to call in to a separate system to actually retrieve the



[illegible]

**What is claimed is:**

1. A paging transceiver, comprising:
  - a receiver for receiving a selective call signal having an information identifier signal identifying remote information available to the paging transceiver;
  - a processor for receiving the information identifier signal and for generating an alert signal after receiving the information identifier signal;
  - a user interface for receiving the alert signal and for generating an alert to inform a user that the information identifier signal has been received, the user interface also for receiving input from the user designating a desired action on the available information;
  - the processor for detecting the input at the user interface and for generating a request signal indicating the desired function, the request signal including at least part of the information identifier signal; and
  - a transmitter for transmitting the request signal to a system so that the desired function may be performed on the information identified by the information identifier signal.
2. The paging transceiver as set forth in claim 1, wherein the desired function is retrieving the information at the paging transceiver and the receiver is for receiving and demodulating the information.

3. The paging transceiver as set forth in claim 2, wherein the user interface is for presenting the information to the user.

4. The paging transceiver as set forth in claim 1, wherein the information is an audio file.

5. The paging transceiver as set forth in claim 1, wherein the information is a text file.

6. The paging transceiver as set forth in claim 1, wherein the information is a video file.

7. The paging transceiver as set forth in claim 1, wherein the information is a graphics file.

8. The paging transceiver as set forth in claim 1, wherein the information is a data file.

9. The paging transceiver as set forth in claim 1, further comprising a memory for storing the information identifier.

10. The paging transceiver as set forth in claim 1, further comprising at least one antenna for receiving the selective call signal and for propagating the request signal.

11. The paging transceiver as set forth in claim 1, wherein the selective call signal also includes an address signal and the processor generates the alert signal only if the address signal is associated with the paging transceiver.

12. The paging transceiver as set forth in claim 11, wherein the address signal is associated only with the paging transceiver.

13. The paging transceiver as set forth in claim 11, wherein the address signal is associated with a plurality of paging transceivers.

14. The paging transceiver as set forth in claim 11, wherein the address signal comprises a mobile identification number.

15. The paging transceiver as set forth in claim 11, wherein the address signal comprises an address code.

16. The paging transceiver as set forth in claim 1, wherein the processor generates a reply signal in response to receiving the information identifier signal.



22. The paging transceiver as set forth in claim 1, wherein the processor delays generating the request signal until a call is in progress.

23. The paging transceiver as set forth in claim 22, wherein the processor initiates the call after the user interface receives input from the user indicating that the call should be initiated.

24. The paging transceiver as set forth in claim 1, wherein the processor supplies a second alert signal to the user interface after the desired action has been executed on the information.

25. The paging transceiver as set forth in claim 24, wherein the user interface generates a second alert to inform the user that the desired action has been executed.

26. The paging transceiver as set forth in claim 25, wherein the second alert generated by the user interface is different than the alert generated by the user interface in response to receiving the information identifier signal.

27. The paging transceiver as set forth in claim 1, wherein the receiver receives the selective call signal over a paging network.

28. The paging transceiver as set forth in claim 1, wherein the receiver receives the selective call signal over a mobile radiotelephone network.

29. The paging transceiver as set forth in claim 1, wherein transmitter transmits the request signal over a paging network.

30. The paging transceiver as set forth in claim 1, wherein the transmitter transmits the request signal over a mobile radiotelephone network.

31. The paging transceiver as set forth in claim 1, wherein the receiver receives the selective call signal from a second system.









performed on the second information, and performing the second desired function on the second information at the transceiver.

48. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises steps of determining whether a call is currently in progress with the transceiver and transmitting the request signal if the call is in progress.

49. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises a step of receiving user input indicating that the call should be initiated.

50. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises a step of sending the request signal over a paging network.

51. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises a step of sending the request signal over a mobile radiotelephone network.

52. The method as set forth in claim 32, wherein the step of receiving the selective call signal occurs over a first network and the step of sending the request signal occurs over a second network.



[illegible][illegible]

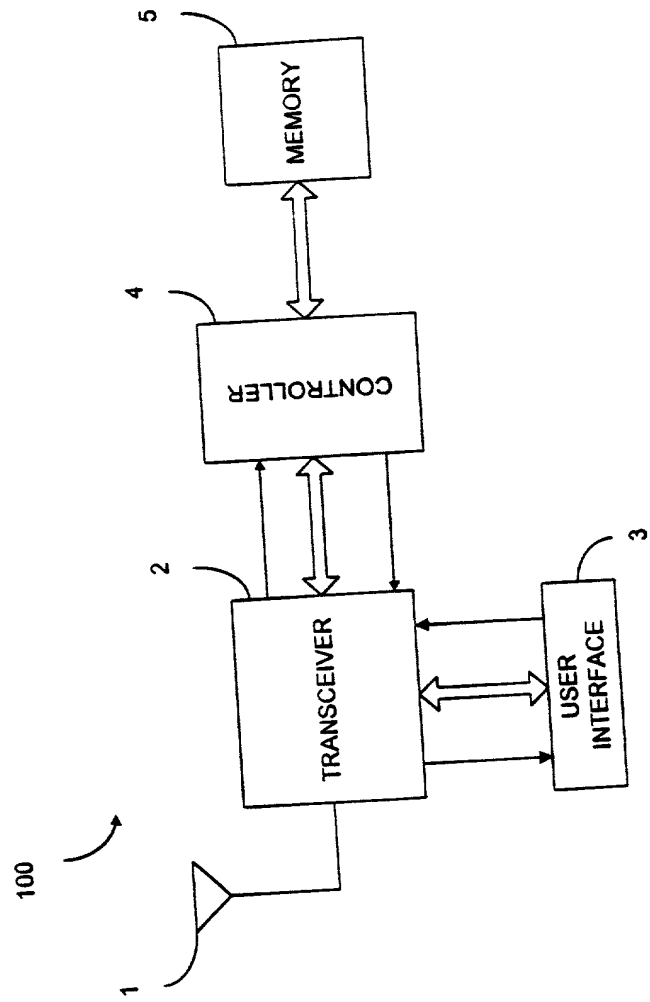


FIG. 1

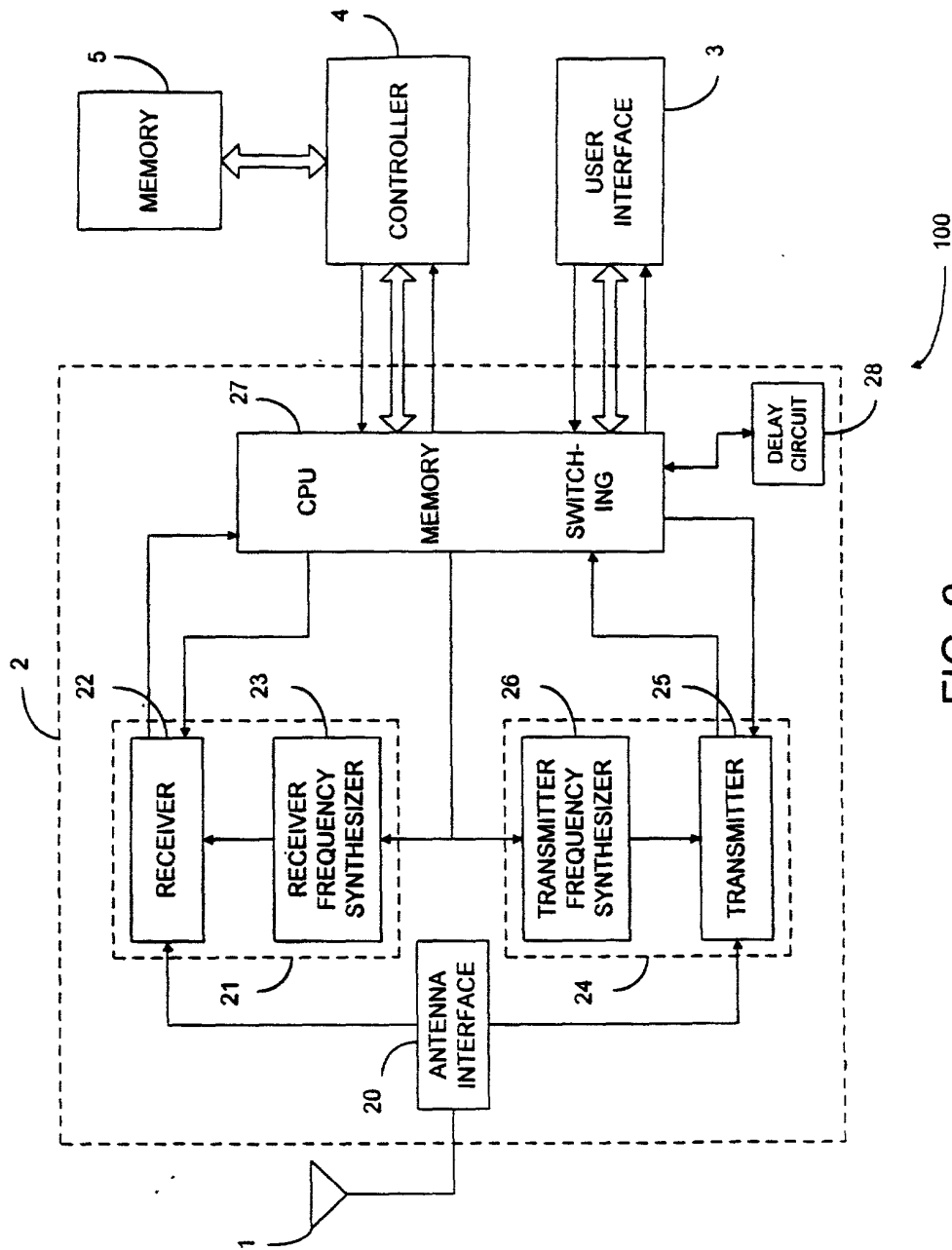
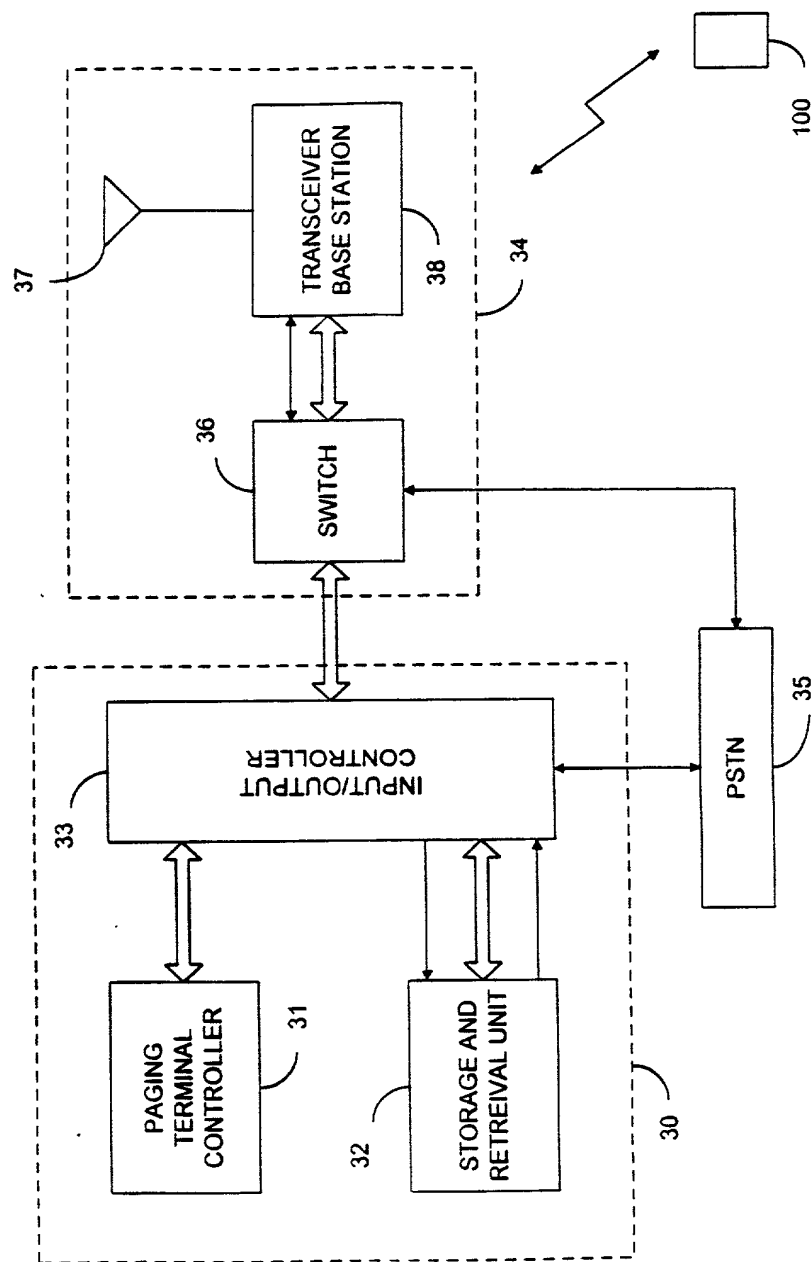


FIG. 2





**FIG. 3**

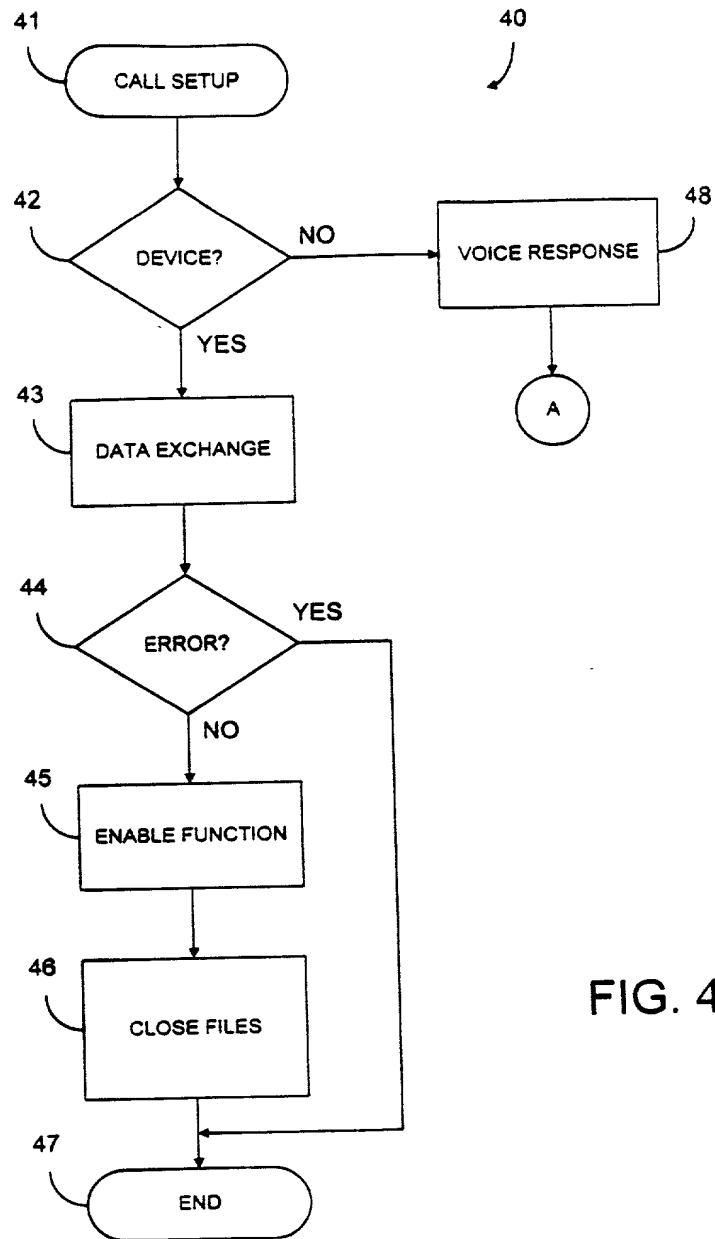
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FIG. 4A

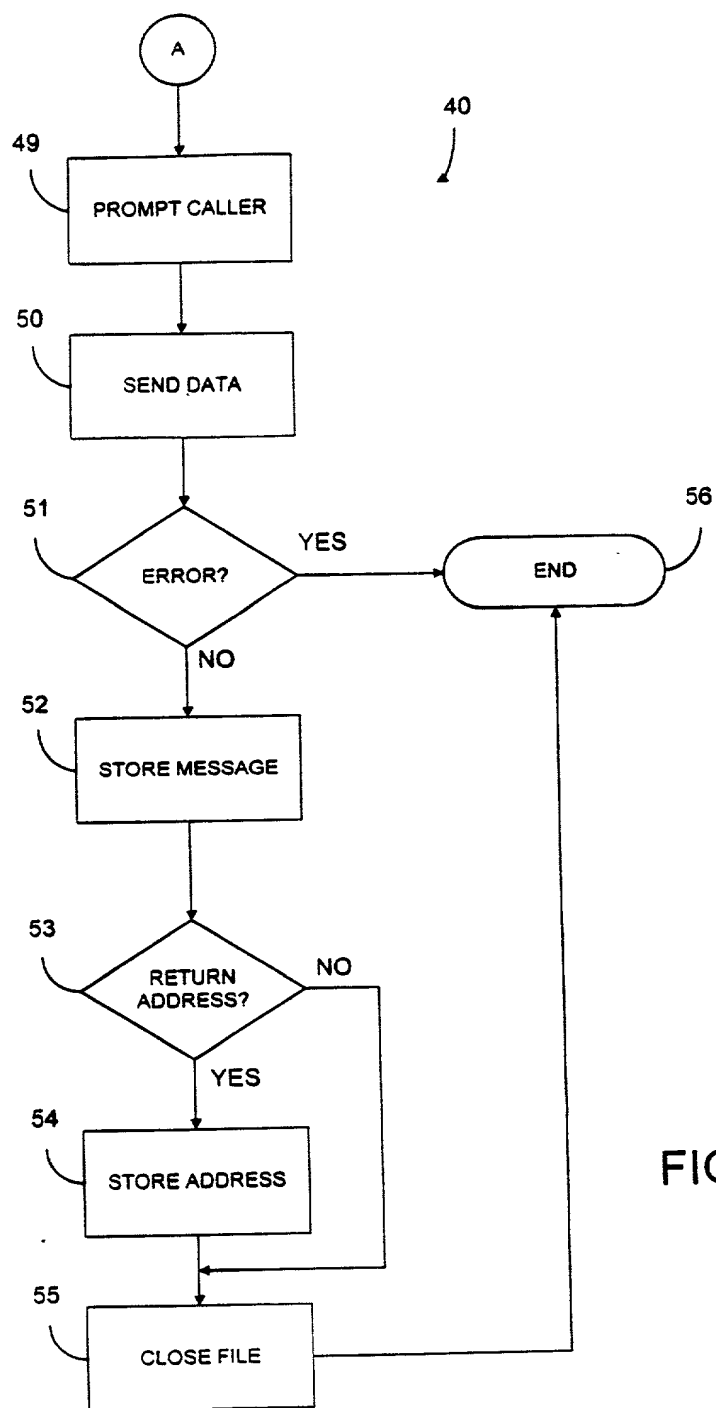
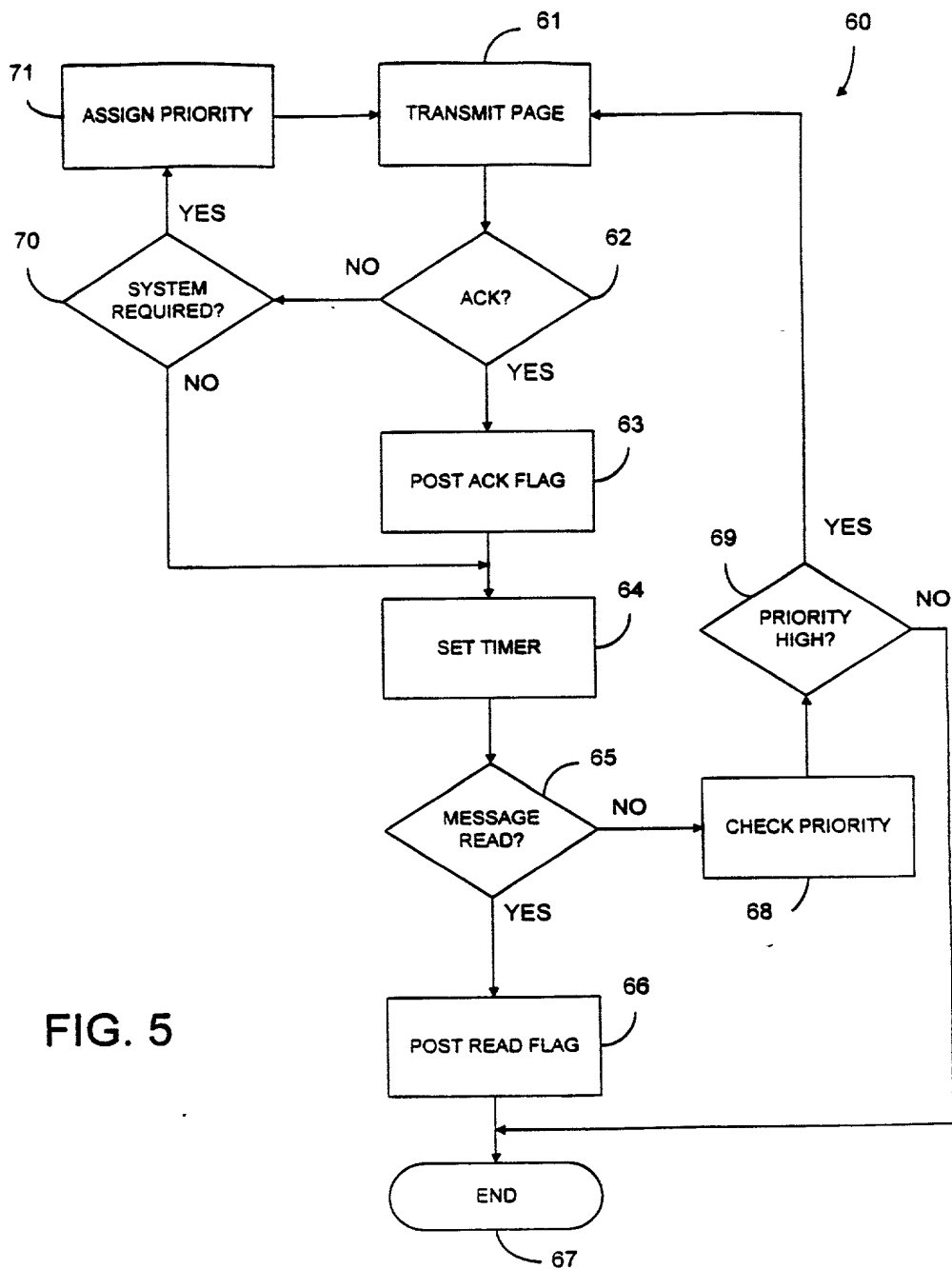
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FIG. 4B



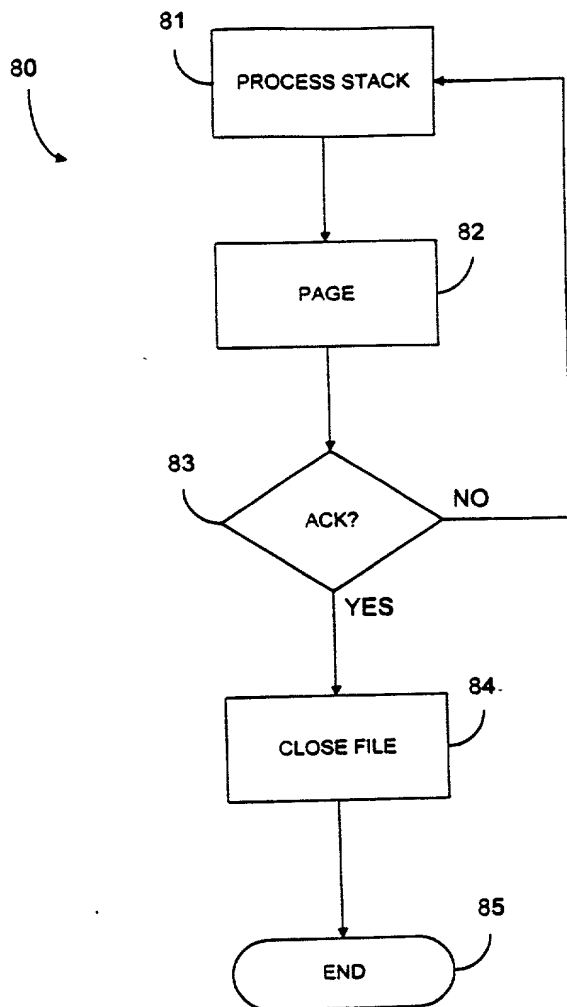


FIG. 6

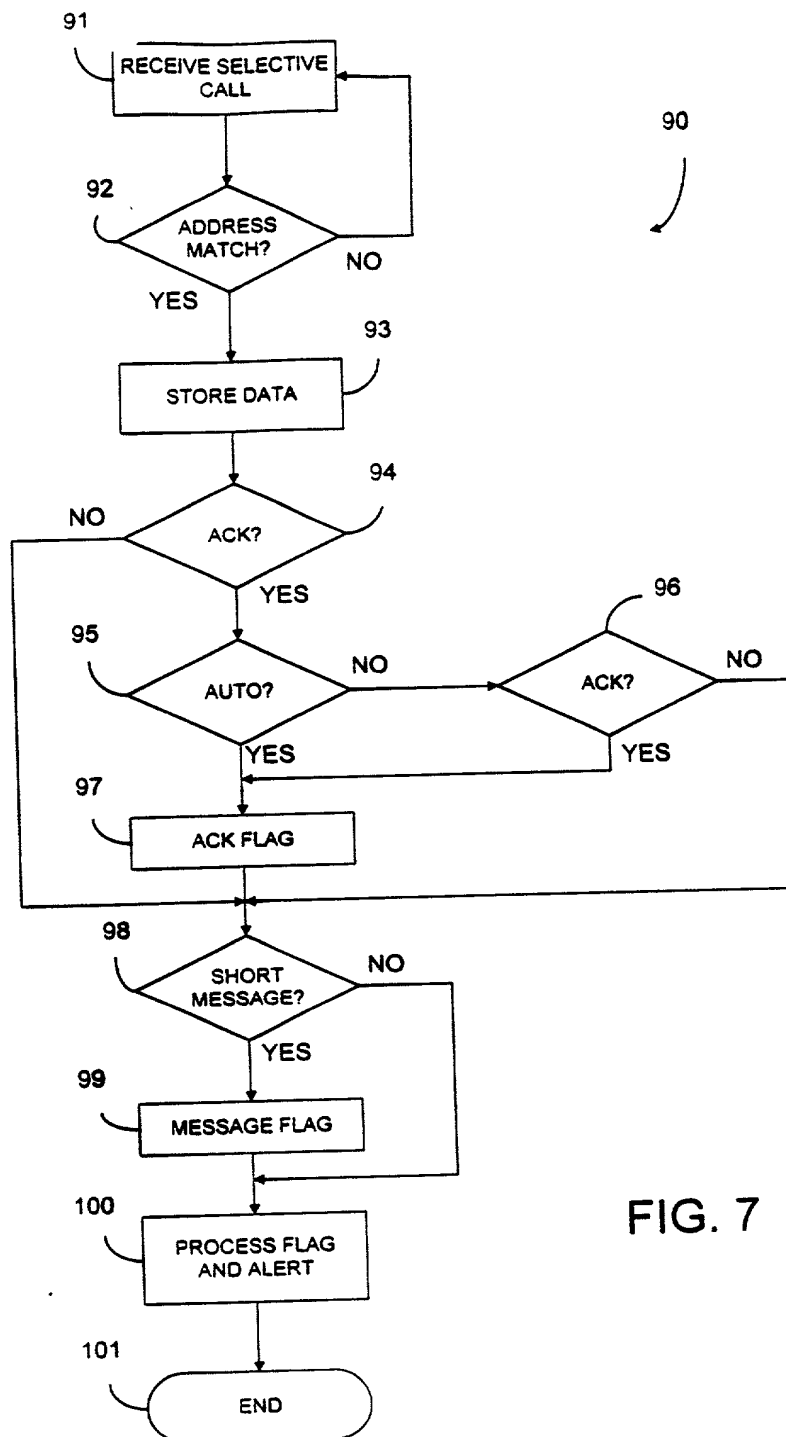


FIG. 7

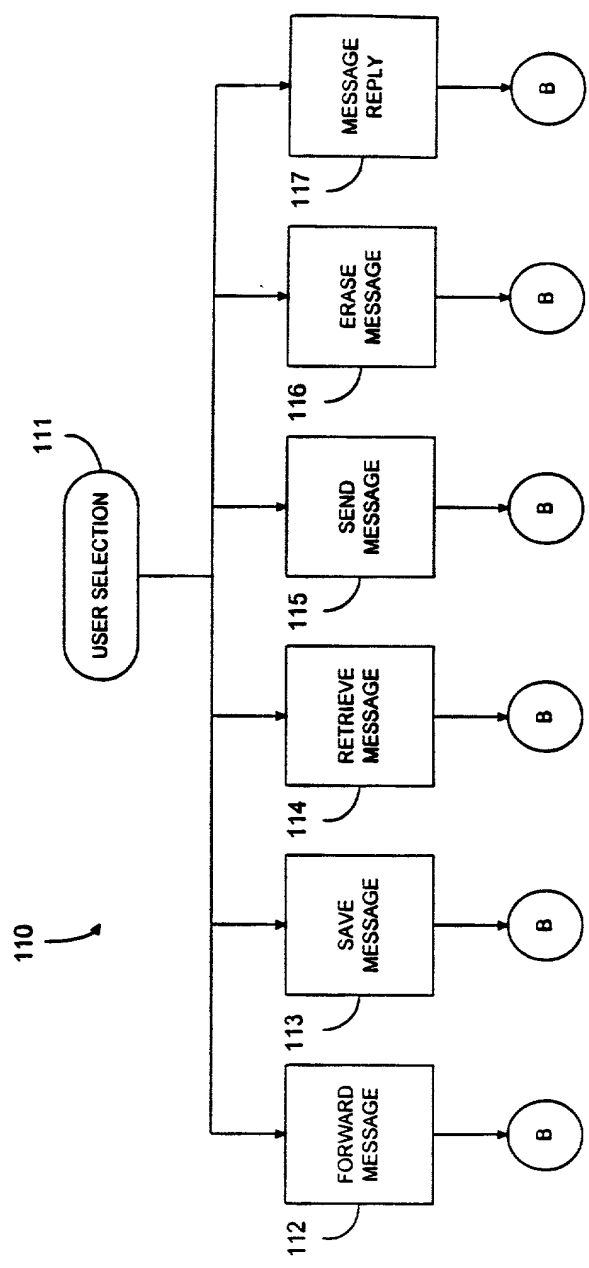


FIG. 8

Table 1. Demographic characteristics of the study population	
Age (years)	50.0 ± 10.0
Gender	
Male	50.0%
Female	50.0%
Education (years)	12.0 ± 2.0
Marital status	
Married	80.0%
Single	20.0%
Occupation	
Professional	30.0%
Managerial	20.0%
Technical	10.0%
Service	20.0%
Unemployed	20.0%
Income (USD/month)	1000.0 ± 500.0
Health status	
Good	70.0%
Fair	20.0%
Poor	10.0%

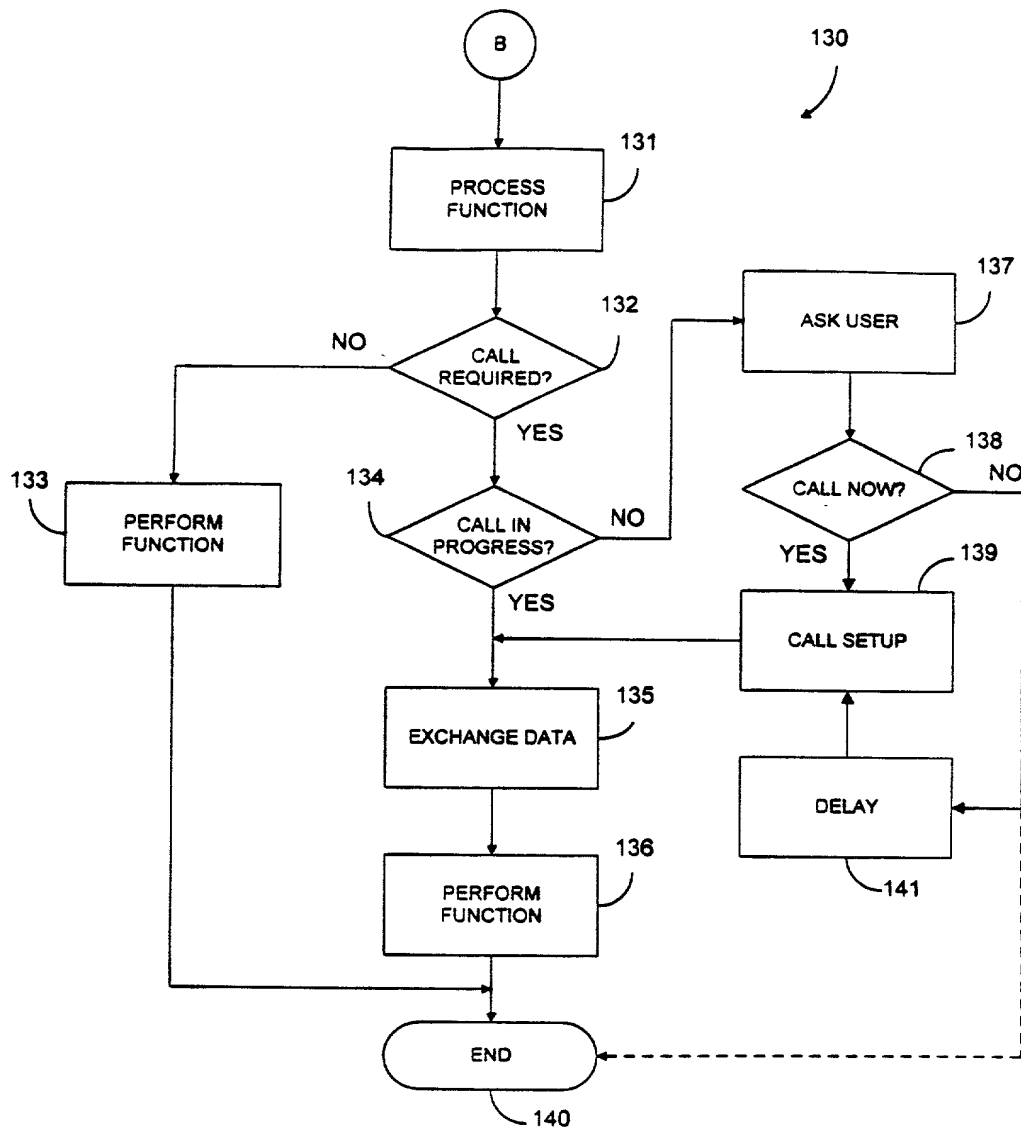


FIG. 9



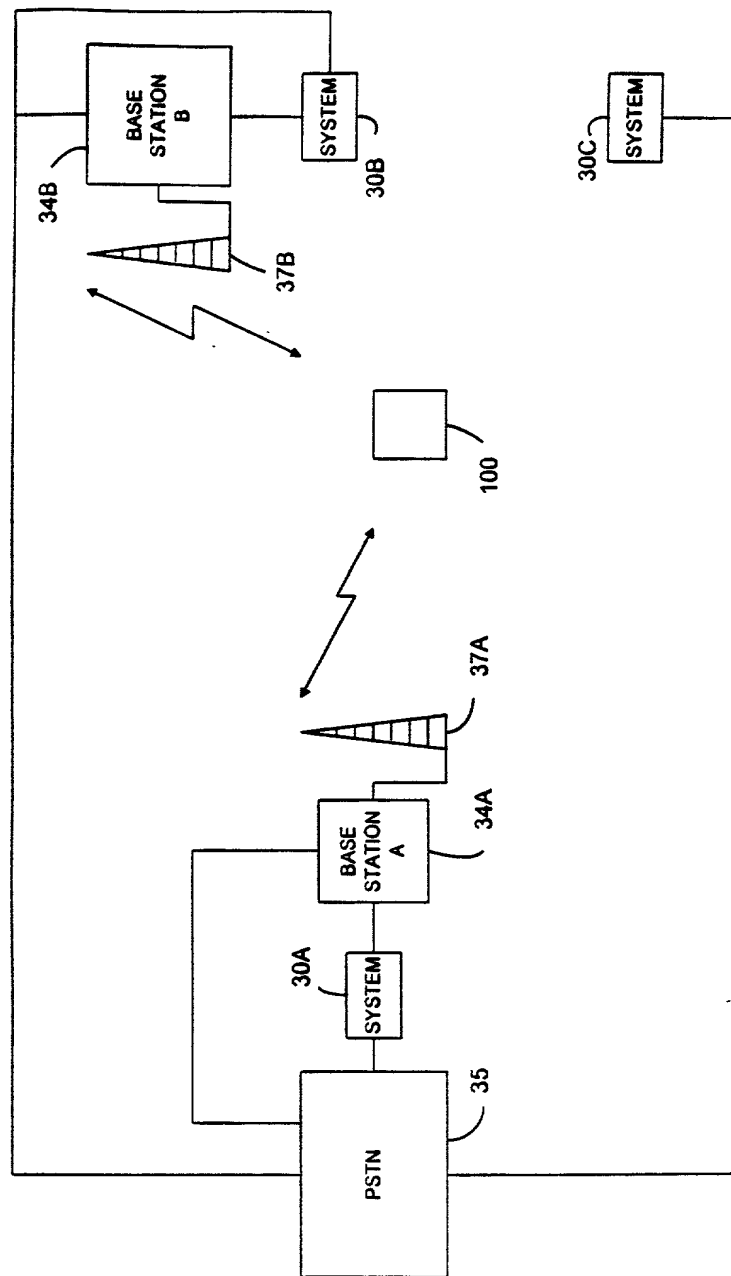


FIG. 10

201

SYSTEM ID	TRANSCIVER(S) ID	MESSAGE ID	MESSAGE TYPE	MESSAGE LENGTH	MESSAGE PRIORITY	ADDITIONAL INFORMATION
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FIG. 11



We (I) hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

**(Filing Date)**

(Filing Date)

We (I) hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

**Filing Date**

**Status (pending, patented,  
abandoned)**

And we (1) hereby appoint: Norman F. Oblon, Registration Number 24,618; Marvin J. Spivak, Registration Number 24,913; C. Irvin McClelland, Registration Number 21,124; Gregory J. Maier, Registration Number 25,599; Arthur L. Neustadt, Registration Number 24,834; Richard D. Kelly, Registration Number 27,757; James D. Hamilton, Registration Number 28,421; Eckhard H. Kuesters, Registration Number 28,870; Robert T. Pous, Registration Number 29,099; Charles L. Gholz, Registration Number 26,395; Vincent J. Sunderdick, Registration Number 29,004; William E. Beaumont, Registration Number 30,996; Steven B. Kelber, Registration Number 30,073; Robert F. Gnuse, Registration Number 27,295; Jean-Paul Lavalleye, Registration Number 31,451; Stephen G. Baxter, Registration Number 32,884; Marvin M. Zolick, Registration Number 35,745; Robert W. Hahl, Registration Number 33,893; Richard L. Treanor, Registration Number 36,379; Steven P. Weibrouch, Registration Number 32,829; John T. Goolkasian, Registration Number 26,142; Marc R. Labgold, Registration Number 34,651; William J. Healey, Registration Number 36,160; Richard L. Chinn, Registration Number 34,305; Steven E. Lipman, Registration Number 30,011; Carl E. Schlier, Registration Number 34,426; James J. Kulbaski, Registration Number 34,648; Catherine B. Richardson, Registration Number 39,007; Richard A. Neifeld, Registration Number 35,299; J. Derek Mason, Registration Number 35,270; and Surinder Sachar 34,423; our (my) attorneys, with full powers of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith; and we (1) hereby request that all correspondence regarding this application be sent to the firm of OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C., whose Post Office Address is: Fourth Floor, 1755 Jefferson Davis Highway, Arlington, Virginia 22202.

We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

### Residence

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Citizen of: U.S.

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Chapel Hill, North Carolina 27516

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re the application of:

Docket No.: 19529-038

Richard J. Helferich

Serial No.: To Be Assigned

Filing Date: Herewith

For: **Paging Transceivers and Methods for  
Selectively Retrieving Messages**

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The Assistant Commissioner for Patents  
Washington, D.C. 20231

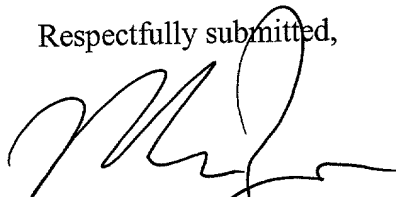
**Notification That the Power of Attorney and Correspondence Has Changed  
During the Prosecution of the Prior Application (37 C.F.R. 1.63(d)(4))**

Dear Sir:

The above identified non-provisional patent application is a divisional of U.S. Patent Application No.: 08/934,143 (hereafter "the prior application").

Pursuant to 37 C.F.R. § 1.63(d)(4), Applicants hereby identify that the Power of Attorney and Correspondence address was changed during the prosecution of the prior application. Attached hereto is a copy of (1) a Revocation and New Power of Attorney and (2) a Notice of Change of Correspondence Address and Attorney Docket Number, both of which were filed in the prior application on July 13, 1999 and June 8, 2000, respectively.

Respectfully submitted,



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Date: October 12, 2000

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